

**PROCESS FOR MAKING A HIGH VOLTAGE NPN BIPOLAR
DEVICE WITH IMPROVED AC PERFORMANCE**

ABSTRACT OF THE DISCLOSURE

5 A method of improving the speed of a heterojunction bipolar device without negatively
impacting ruggedness of the device is provided. This method includes the steps of
providing a structure that includes at least a bipolar device region, the bipolar device
region comprising at least a collector region formed over a sub-collector region; and
forming an n-type dopant region within the collector region, wherein the n-type dopant
region has a vertical width that is less than about 2000 Å and a peak concentration that is
10 greater than a peak concentration of the collector region. The present invention also
provides a method of fabricating a heterojunction bipolar transistor device as well as the
device itself which can be used in various applications including as a component for a
mobile phone, a component of a personal digital assistant and other like applications
wherein speed and ruggedness are required.

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